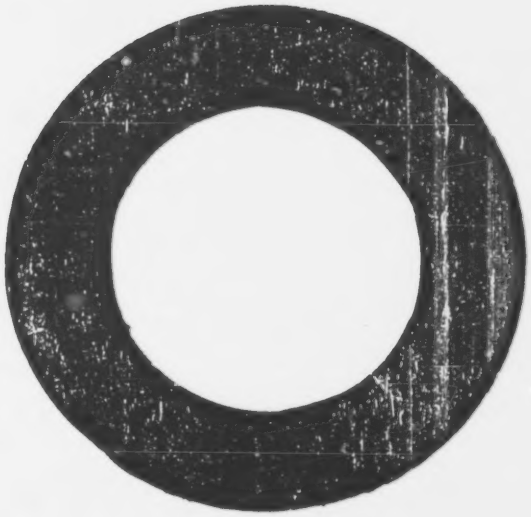

REPORT OF THE COMMITTEE ON THE PEACEFUL USES OF OUTER SPACE

GENERAL ASSEMBLY

OFFICIAL RECORDS: FORTY-FIFTH SESSION

SUPPLEMENT No. 20 (A/45/20)

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NOTE

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I. INTRODUCTION

1. The Committee on the Peaceful Uses of Outer Space held its thirty-third session at United Nations Headquarters from 4 to 14 June 1990. The officers of the Committee were the following:

Chairman: Mr. Peter Jankowitsch (Austria)

Vice-Chairman: Mr. Aurel Dragos Munteanu (Romania)

Rapporteur: Mr. Flavio Miragaia Perri (Brazil)

The verbatim records of the Committee's meetings are contained in documents A/AC.105/PV.336-350.

Meetings of subsidiary bodies

2. The Scientific and Technical Sub-Committee held its twenty-seventh session at United Nations Headquarters from 26 February to 9 March 1990 under the chairmanship of Mr. John H. Carver (Australia). The report of the Sub-Committee was issued as document A/AC.105/456.

3. The Legal Sub-Committee held its twenty-ninth session at the United Nations Office at Geneva from 2 to 20 April 1990, under the chairmanship of Mr. Václav Mikulka (Czechoslovakia). The report of the Sub-Committee was issued as document A/AC.105/457 and Corr.1. The summary records of the Sub-Committee's meetings are contained in documents A/AC.105/C.2/SR.527-538.

4. At its opening meeting, the Committee adopted the following agenda:

1. Adoption of the agenda.
2. Statement by the Chairman.
3. General exchange of views.
4. Ways and means of maintaining outer space for peaceful purposes.
5. Report of the Scientific and Technical Sub-Committee on the work of its twenty-seventh session.
6. Report of the Legal Sub-Committee on the work of its twenty-ninth session.
7. Implementation of the recommendations of the Second United Nations Conference on the Exploration and Peaceful Uses of Outer Space.
8. Spin-off benefits of space technology: review of current status.
9. Other matters.
10. Report of the Committee to the General Assembly.

Membership and attendance

5. In accordance with General Assembly resolutions 1721 E (XVI) of 20 December 1961, 3182 (XXVIII) of 18 December 1973, 32/196 B of 20 December 1977 and 35/16 of 3 November 1980, the Committee on the Peaceful Uses of Outer Space was composed of the following Member States: Albania, Argentina, Australia, Austria, Belgium, Benin, Brazil, Bulgaria, Burkina Faso, Cameroon, Canada, Chad, Chile, China, Colombia, Czechoslovakia, Ecuador, Egypt, France, German Democratic Republic, Germany, Federal Republic of, Hungary, India, Indonesia, Iran (Islamic Republic of), Iraq, Italy, Japan, Kenya, Lebanon, Mexico, Mongolia, Morocco, Netherlands, Niger, Nigeria, Pakistan, Philippines, Poland, Portugal, Romania, Sierra Leone, Sudan, Sweden, Syrian Arab Republic, Turkey, Union of Soviet Socialist Republics, United Kingdom of Great Britain and Northern Ireland, United States of America, Uruguay, Venezuela, Viet Nam and Yugoslavia.

6. At its 336th, 337th, 338th and 342nd meetings, the Committee decided to invite, at their request, the representatives of Bolivia, Costa Rica, Cuba, Greece, the Libyan Arab Jamahiriya, Malaysia, Peru, Spain, Switzerland and the Holy See to attend the thirty-third session of the Committee and to address it, as appropriate, on the understanding that this would be without prejudice to further requests of this nature and that it would not involve any decision of the Committee concerning status.

7. Representatives of the International Atomic Energy Agency (IAEA), the Office of the United Nations Disaster Relief Co-ordinator (UNDRO), the Food and Agriculture Organization of the United Nations (FAO), the International Telecommunication Union (ITU) and the United Nations Educational, Scientific and Cultural Organization (UNESCO) also attended the session.

8. Representatives of the European Space Agency (ESA), the Committee on Space Research (COSPAR) of the International Council of Scientific Unions (ICSU), the International Astronautical Federation (IAF) and the International Telecommunications Satellite Organization (INTELSAT) also attended the session.

9. A list of representatives attending the session is contained in document A/AC.105/XXXIII/INF/1.

Commemorations

10. The Committee took note of the thirtieth anniversary of the launching by the United States of the first meteorological satellite and the twentieth anniversary of the launch of the first Chinese satellite.

Proceedings

11. At the opening of the session, at the 336th meeting, the Chairman of the Committee made a statement reviewing the work of the Committee's subsidiary bodies and outlining the work of the Committee. He reviewed the scientific and technological advances achieved in the field of peaceful exploration of outer space in the past year, and called upon the Committee to consider what further contributions of its own it might make towards the strengthening of international co-operation. The text of the Chairman's statement is annexed to the present report (see annex I).

12. Having been informed that the Committee's Vice-Chairman, Mr. Petre Tanasie, had been assigned to a new post, the Committee, at its 336th meeting, elected Mr. Aurel Dragos Munteanu as its new Vice-Chairman.

13. At the 336th meeting, the Chief of the Outer Space Affairs Division of the Secretariat made a statement reviewing the work of the Division during the previous year.

14. At its 336th to 340th meetings, from 4 to 6 June 1990, the Committee held a general exchange of views, in the course of which statements were made by the representatives of Argentina, Austria, Brazil, Bulgaria, Canada, Chile, China, Colombia, Cuba, Czechoslovakia, Egypt, France, the German Democratic Republic, Germany, Federal Republic of, India, Indonesia, Japan, Mexico, Mongolia, the Netherlands, Nigeria, Pakistan, the Philippines, Sweden, the Union of Soviet Socialist Republics, the United Kingdom of Great Britain and Northern Ireland, the United States of America and Yugoslavia (see A/AC.105/PV.336-340).

15. The representatives of UNDRO, ITU, ESA, INTELSAT, COSPAR and IAF, as well as the United Nations Expert on Space Applications, also made statements (see A/AC.105/PV.336-338, 343 and 348).

16. During the session, special presentations were made by: Mr. Yuri P. Kiyenko, Committee on Geodesy and Cartography, the Union of Soviet Socialist Republics, on "Remote sensing for studying and mapping the natural and economic potential of the USSR"; Mr. Yuri N. Koptev, Ministry of General Machinery, USSR, on "Exploration of the natural resources of the Earth and ecological studies on board the Mir Orbital Station"; Mr. Charles P. Williams, Earth Observation Satellite Company (EOSAT), United States, on "Status of the Landsat programme"; Mr. Gerard Brachet, Spot-Image, France, on "Applications of the Spot satellite in the service of development"; Mr. M. G. Chandrasekhar, Indian Space Research Organization, India, on "The Indian Remote Sensing (IRS) Satellite Programme"; Mr. Russell Koffler, National Oceanic and Atmospheric Administration (NOAA), United States, on "The thirty-year anniversary of environmental satellites"; Mr. Leonard A. Ault, Office of Commercial Programs, National Aeronautics and Space Administration (NASA), United States, on "Spin-off benefits of space technology"; and Dr. Yuri P. Grigoriev, Ministry of General Machinery, USSR, on "Spin-off benefits of space technology".

17. After considering the various items before it, the Committee, at its 350th meeting, on 14 June 1990, adopted its report to the General Assembly containing the recommendations and decisions set out in the paragraphs below.

II. RECOMMENDATIONS AND DECISIONS

A. Ways and means of maintaining outer space for peaceful purposes (agenda item 4)

18. In accordance with paragraph 26 of General Assembly resolution 44/46 of 8 December 1989, the Committee on the Peaceful Uses of Outer Space continued its consideration, as a matter of priority, of ways and means of maintaining outer space for peaceful purposes.

19. The Committee was of the view that the request of the General Assembly, in its resolution 44/46, to the Committee to consider, as a matter of priority, ways and means of maintaining outer space for peaceful purposes and to report thereon, showed the concern felt by the international community and the need to promote international co-operation in the peaceful uses of outer space, taking into account the needs of the developing countries. The Committee, through its work in the scientific, technical and legal fields, had an important role to play in assuring that outer space was maintained for peaceful purposes. It was the firm belief of the members of the Committee that developments that would strengthen the role of the Committee in maintaining outer space for peaceful purposes should continue. The Committee had responsibilities relating to the strengthening of the international basis for the peaceful exploration and uses of outer space, which could cover, among other matters, further development of international space law, including, as appropriate, the preparation of international agreements governing various practical peaceful applications of the achievements of space science and technology. Strengthening international co-operation in the peaceful exploration and uses of outer space also implied the need for the Committee itself to improve, whenever necessary, the methods and forms of its work.

20. Some delegations expressed the view that the Committee should complement the work being done in bilateral and multilateral forums towards preventing an extension of the arms race into outer space and could provide substantive input to the discussions and negotiations in the Conference on Disarmament. They also expressed the view that the Committee should be kept informed as to the progress made by the Conference on questions related to preventing an extension of the arms race into outer space and that working contacts should be established between the two bodies. At the same time, the same delegations requested that a detailed report be provided on the number of meetings and on the debates held by the Ad Hoc Committee on the prevention of an arms race in outer space of the Conference on Disarmament. They further expressed the view that the peaceful uses of outer space were inseparably linked to the non-peaceful uses, and that promoting and strengthening the peaceful uses of outer space required effective measures to prevent an extension of the arms race into outer space.

21. Other delegations expressed the view that disarmament questions did not fall within the competence of the Committee. They pointed out that, within the United Nations, the question of the prevention of an arms race in outer space was within the exclusive competence of the First Committee of the General Assembly and of the Conference on Disarmament. Some of those delegations expressed the view that the Committee should avoid extraneous and divisive topics such as disarmament and concentrate on strengthening the scientific and technical content of its work and on efforts to broaden and deepen co-operation by all countries in outer space

activities. Some of those delegations felt that it would be inappropriate to request a report from the Conference on Disarmament.

22. The Committee agreed that examples of the efforts to broaden and deepen international co-operation in outer space included International Space Year, the COSPAS/SARSAT programme and other initiatives taken through regional and international conferences, in particular the regional space conference hosted by Costa Rica.

23. Some delegations noted that a number of proposals had been made with a view to promoting broad international co-operation for maintaining outer space for peaceful purposes. In their view, those proposals included: the establishment of a world space organization; a ban on the stationing of weapons in outer space; unilateral commitments not to place weapons in outer space; a ban on the use of force in outer space or from space to the Earth; the organization, under an "open space" proposal to strengthen confidence-building measures in space, of a system for monitoring space activities to ensure that outer space was used for exlusively peaceful purposes; and a "Mission to Planet Mars", possibly with a role for the United Nations.

24. Some delegations reiterated the view that the best way for the Committee to contribute to maintaining outer space for peaceful purposes was to promote international co-operation further by revitalizing its work and that of its sub-committees. In that connection, they proposed the establishment of a working group under the item to explore ways to make the work of the Committee and its sub-committees more effective.

25. Some delegations expressed the view that the Committee should reflect only consensus wording on this question in its report. Other delegations expressed the view that the report should also reflect the differing views and proposals made during the discussions under the item.

B. Report of the Scientific and Technical Sub-Committee on the work of its twenty-seventh session

Implementation of the recommendations of the Second United Nations Conference on the Exploration and Peaceful Uses of Outer Space (agenda items 5 and 7)

26. The Committee conducted a joint consideration of agenda items 5 and 7, entitled "Report of the Scientific and Technical Sub-Committee on the work of its twenty-seventh session" and "Implementation of the recommendations of the Second United Nations Conference on the Exploration and Peaceful Uses of Outer Space", respectively.

27. The Committee took note with appreciation of the report of the Scientific and Technical Sub-Committee on the work of its twenty-seventh session (A/AC.105/456), covering the results of its deliberations on the items assigned to it by the General Assembly in its resolution 44/46.

1. Implementation of the recommendations of the Second United Nations Conference on the Exploration and Peaceful Uses of Outer Space

(a) Working Group of the Whole

28. The Committee noted with satisfaction that, in accordance with General Assembly resolution 44/46, the Sub-Committee had given priority consideration to the item entitled "Implementation of the recommendations of the Second United Nations Conference on the Exploration and Peaceful Uses of Outer Space" and had re-established the Working Group of the Whole to evaluate the implementation of the recommendations of the Second United Nations Conference on the Exploration and Peaceful Uses of Outer Space 1/ under the chairmanship of Mr. Raimundo González (Chile).

29. The Committee noted with satisfaction that the preparation of certain reports on subjects of relevance to the recommendations of the Second United Nations Conference on the Exploration and Peaceful Uses of Outer Space had been undertaken pursuant to the recommendations of the Working Group of the Whole, which were made at its third session in 1989, and as endorsed by the General Assembly in paragraph 11 of its resolution 44/46. The Committee also noted that further studies and reports would be undertaken to implement the recommendations that had been made by the Working Group of the Whole at its fourth session, held in 1990.

30. The Committee noted that the Working Group of the Whole had reviewed the implementation of the recommendations of the Second United Nations Conference on the Exploration and Peaceful Uses of Outer Space, had concluded that many of the recommendations were still not fully implemented and had made a number of recommendations concerning the implementation of the recommendations of the Conference. The Committee endorsed the recommendations of the Working Group of the Whole, as contained in its report (A/AC.105/456, annex II).

31. The Committee recommended that the Working Group of the Whole should be reconvened during the next session of the Scientific and Technical Sub-Committee to continue its work.

32. The Committee, while expressing its appreciation to all Governments that had made or had expressed their intention of making, contributions for the implementation of the recommendations of the Second United Nations Conference on the Exploration and Peaceful Uses of Outer Space, took note of the disappointment expressed by the developing countries at the lack of financial resources to implement fully those recommendations.

(b) United Nations Programme on Space Applications

33. At the outset of the Committee's deliberations on this item, the United Nations Expert on Space Applications reviewed the activities carried out and planned under the Programme on Space Applications during the period 1989-1991. The Committee expressed its appreciation to the Expert on Space Applications for the effective manner in which he had implemented the Programme within the limited funds at his disposal.

34. Some delegations drew the Committee's attention to the limited economic resources available to the Programme and therefore requested that the financial

resources be increased so that the Programme's activities could be implemented. Some delegations expressed concern that the contributions of space Powers and developed countries had not been commensurate with their capabilities.

35. The Committee took note of the Programme on Space Applications, as set out in the report of the Sub-Committee. The Committee was pleased to note that further progress was being made in the implementation of the Programme activities planned for 1990.

36. The Committee recommended that the United Nations Programme on Space Applications should specifically highlight the cost-effective nature of the use of space applications, particularly in the area of remote sensing, in all its activities.

(i) Long-range fellowships for in-depth training

37. The Committee expressed its appreciation to the Governments of Austria, Brazil, the German Democratic Republic and the Union of Soviet Socialist Republics, as well as to ESA, for offering fellowships through the United Nations in 1989-1990 and for renewing their offers of fellowships for 1990-1991. The Committee also expressed its appreciation to the USSR for offering additional fellowships for 1990-1991, and to China for offering fellowships for 1990-1991.

(ii) Technical advisory services

38. The Committee noted that the Programme was providing technical advisory services to: the Indian Ocean Marine Affairs Co-operation (IOMAC) Programme for the planning of oceanographic and marine affairs pilot projects to be carried out with financial support from the United Nations Development Programme (UNDP) and technical support from the Government of France; Member States on the Atlantic coast of Africa for planning remote-sensing applications to marine resources and coastal management; the Economic Commission for Africa (ECA) for evaluating the remote-sensing programme of the Regional Centre for Services in Surveying, Mapping and Remote Sensing at Nairobi; and the Government of Costa Rica for the preparation of the Space Conference of the Americas: Prospects of Co-operation for Development", and for follow-up activities to the Conference. The Committee also noted that, in co-operation with the United Nations, ESA would be providing remote-sensing satellite data sets for selected countries in North Africa and West Africa.

(iii) United Nations workshops/training courses/seminars/meetings of experts

39. Regarding the United Nations workshops, training courses and meetings of experts for 1990, the Committee expressed its appreciation to:

(a) The Government of Cuba for co-sponsoring the United Nations Workshop on Space Communications for Development for the benefit of Member States in the region of the Economic Commission for Latin America and the Carribbean (ECLAC);

(b) The Government of Sweden for co-sponsoring the United Nations/Sweden Training Course on Remote Sensing Education for Educators for the benefit of Member States in the ECA region;

(c) The Government of France and to ESA as well as FAO for co-sponsoring the International Workshop on Remote Sensing and Geo-information Technology for Decision Makers;

(d) The Government of Brazil and ESA, as well as FAO, for co-sponsoring the Second United Nations/FAO/ESA Workshop on Microwave Remote Sensing Technology for the benefit of Member States in the ECLAC region;

(e) The Government of Czechoslovakia, as well as FAO, for co-sponsoring the United Nations/FAO International Training Course on Agricultural Applications of Remote Sensing.

40. The Committee endorsed the programme of United Nations workshops, training courses, seminars and meetings of experts proposed for 1991 as outlined by the Expert on Space Applications in his report (see A/AC.105/446, para. 32) and recommended those activities for approval by the General Assembly. In so doing, the Committee welcomed the invitations from:

(a) The Government of China to host and co-sponsor the United Nations Workshop on Space Technology Applications to Minimize and Alleviate the Impact of Natural Disasters for the benefit of States Members in the region of the Economic and Social Commission for Asia and the Pacific (ESCAP);

(b) The Government of Italy to co-sponsor the XVth United Nations/FAO International Training Course on Remote Sensing Applications;

(c) The Government of India to host and co-sponsor the United Nations Workshop on Basic Space Research for the benefit of developing countries;

(d) The Government of the United States to host and co-sponsor the International Training Course on Remote Sensing Applications for Environmental Assessment and Monitoring for the benefit of developing countries;

(e) The European Space Agency to co-sponsor the Third United Nations/ESA Workshop on Microwave Remote Sensing Technology for the benefit of Member States in the ECA region, and the Sixth United Nations/FAO/World Meteorological Organization (WMO)/ESA Training Course on Remote Sensing Technology for Development for the benefit of Member States in the ECLAC region.

41. The Committee noted with appreciation the financial and other assistance provided and being offered during the period 1989-1991 by the Governments of Australia, Austria, Brazil, Cuba, Czechoslovakia, France, the German Democratic Republic, Italy, Nigeria, Pakistan, Spain, Sweden, the USSR, the United Kingdom and the United States, as well as by ESCAP, FAO, UNDP, UNESCO, WMO and ESA, in connection with the workshops, training courses and meetings of experts. The Committee also noted with appreciation the financial contributions of $10,000 from the Government of Austria, $5,000 from the Government of Nigeria and $15,000 from the Government of Pakistan in support of the 1989 activities of the Programme on Space Applications, and the contribution of $12,000 from the Government of Pakistan in support of the 1990 activities.

(iv) Promotion of greater co-operation in space science and technology

42. Regarding the promotion of greater co-operation in space science and technology, the Committee noted with satisfaction that the United Nations Programme on Space Applications in 1989 had collaborated with IAF by co-sponsoring a special session on "Space and flood management" during the fortieth IAF Congress, held in Spain, and with the Space Institute of the University of Tennessee in an international symposium on "Space commercialization: roles of developing countries", held at Nashville, Tennessee, United States. The Committee further noted that the Programme was planning future collaboration with COSPAR by co-sponsoring a scientific panel on "The equatorial electrojet and related phenomena" during COSPAR's 1990 plenary meeting at The Hague, and with IAF by co-sponsoring a special session on "Space and forest management" during the 1990 IAF Congress at Dresden, German Democratic Republic, and a workshop for the benefit of developing countries in association with the 1991 IAF Congress at Montreal, Canada. The Committee also noted the collaboration of the Programme with the International Society for Photogrammetry and Remote Sensing (ISPRS) and the Sociedad de Especialistas Latinoamericanos en Percepción Remota (SELPER).

(c) International Space Information Service

43. With regard to the International Space Information Service, the Committee noted with satisfaction the publication of: Seminars of the United Nations Programme on Space Applications (A/AC.105/443), containing selected papers from the seminars, workshops and training courses of the Programme; a bibliography on space technology applications to marine resources as part of the assistance provided to IOMAC; an addendum to the publication, Education, Training, Research and Fellowship Opportunities in Space Science and Technology and its Applications: A Directory (A/AC.105/432/Add.1); a summary of the scientific and technical presentations made during the twenty-seventh session of the Scientific and Technical Sub-Committee (A/AC.105/459); and a list of experts in space technology and applications (A/AC.105/460). The Committee noted that those publications would be updated as necessary.

(d) Co-ordination of space activities within the United Nations system and inter-agency co-operation

44. With regard to co-ordination of outer space activities within the United Nations system and inter-agency co-operation, the Committee noted the request of the General Assembly, contained in its resolution 44/46, to all organs, organizations and bodies of the United Nations system to co-operate in the implementation of the recommendations of the Second United Nations Conference on the Exploration and Peaceful Uses of Outer Space.

45. The Committee further noted with appreciation that the Scientific and Technical Sub-Committee had continued to stress the necessity of ensuring continuous and effective consultations and co-ordination in the field of outer space activities among organizations within the United Nations system. The Committee noted with satisfaction that the eleventh Inter-Agency Meeting on Outer Space Activities had been held in 1989 (see ACC/1989/PG/8) and that a report on co-ordination of outer space activities within the United Nations system had been submitted to the Scientific and Technical Sub-Committee (A/AC.105/444 and Corr.1). The Committee also noted with appreciation that the twelfth Inter-Agency Meeting on Outer Space Activities would be held in September 1990 at FAO headquarters in Rome.

46. The Committee noted with appreciation the participation in all stages of its work and in that of its Sub-Committee by representatives of United Nations bodies, the specialized agencies and other international organizations. The Committee found the reports submitted by those bodies helpful in enabling it and its subsidiary bodies to fulfil their role as a focal point for international co-operation, especially with respect to the practical applications of space science and technology in developing countries.

(e) Regional and interregional co-operation mechanisms

47. Regarding regional and interregional co-operation mechanisms, the Committee noted with satisfaction that, pursuant to General Assembly resolution 44/46, paragraph 15, and the recommendations of the Second United Nations Conference on the Exploration and Peaceful Uses of Outer Space, the Secretariat had continued to seek to strengthen regional mechanisms of co-operation by organizing regional workshops and training courses as part of the United Nations Programme on Space Applications (see paras. 39 and 40 above) and by providing technical assistance to the IOMAC Programme, to ECA, to Member States on the Atlantic coast of Africa and to the Space Conference of the Americas: Prospects of Co-operation for Development (see para. 38 above). It noted that the Programme was also collaborating with SELPER.

48. The Committee took note of the proposal for regional centres for education in space science and technology, based on existing national or regional educational institutions in developing countries, as outlined in the report of the Expert (A/AC.105/446, paras. 33 to 37). The Committee urged Member States to consider providing voluntary contributions to support that effort.

49. The Committee noted the contributions made by other international organizations towards the implementation of the recommendations of the Second United Nations Conference. In particular, the Committee noted that FAO, through its Remote-Sensing Centre, was continuing its efforts to assist developing countries in the applications of remote sensing. It further noted that ITU was continuing its work in the elaboration of regulatory and technical standards, in providing advisory services on satellite communications to developing countries, in co-ordinating studies on a possible African regional satellite system and in publishing information relating to satellite communications. The Committee also noted that INTELSAT was continuing to develop its system of international communication satellites for use by all countries and was expanding its programme of education and training for the benefit of developing countries.

2. Matters relating to remote sensing of the Earth by satellites, including, inter alia, applications for developing countries

50. The Committee noted that, in accordance with General Assembly resolution 44/46, the Scientific and Technical Sub-Committee had given priority consideration to the item concerning matters relating to remote sensing of the Earth by satellites.

51. The Committee also noted that, in the course of the debate in the Sub-Committee, delegations had reaffirmed their basic positions relating to remote sensing, which had been reflected in the reports of the previous sessions of the Sub-Committee.

52. The Committee recognized the importance of continuing international efforts to ensure the continuity, compatibility and complementarity of systems for remote sensing of the Earth and to promote co-operation through regular meetings between satellite operators, ground station operators and users.

53. The Committee recognized the example of international co-operation given by the free distribution of meteorological information. All countries and agencies were urged to continue that practice.

54. Some delegations expressed serious concern over the commercialization of remote-sensing activities and suggested that the prices of remote-sensing data products and access fees for data reception should be reduced significantly so as to make them affordable for the developing countries and enable the latter to benefit fully from the use of remote-sensing technology.

55. The Committee took note of two working papers submitted by the USSR entitled "Remote sensing of the Earth: OKEAN Programme" (A/AC.105/L.186) and "The Priroda package for remote sensing of the Earth (international project)" (A/AC.105/L.187), providing information on the development of two multi-purpose space platforms for continuing investigation of Earth resources and for monitoring the environment. The Committee also took note of the proposal for an international environmental monitoring space laboratory based on the "ALMAZ" station (see A/AC.105/C.1/L.165).

56. The Committee endorsed the recommendation of the Sub-Committee that, recalling General Assembly resolution 41/65 of 3 December 1986 by which the Assembly had adopted the Principles Relating to Remote Sensing of the Earth from Outer Space, at its twenty-eighth session, it would continue its discussion on remote-sensing activities conducted in accordance with those principles, during its consideration of the agenda item concerning remote sensing.

57. The Committee endorsed the recommendation of the Sub-Committee that the item should be retained on its agenda as a priority item for the next session and that sufficient time should be allocated for its consideration.

3. Use of nuclear power sources in outer space

58. The Committee noted that, in accordance with resolution 44/46, the Scientific and Technical Sub-Committee had reconvened its Working Group on the Use of Nuclear Power Sources in Outer Space to conduct additional work on the basis of its previous reports and of subsequent reports of the Sub-Committee.

59. The Committee noted that the Sub-Committee had adopted the report of the Working Group, as contained in annex III to the report of the Sub-Committee (A/AC.105/456).

60. The Committee noted with satisfaction that the Working Group had reached agreement on recommendations for the safe use of nuclear power sources in outer space and that those recommendations had provided a basis for agreement in the concerned Working Group of the Legal Sub-Committee on a text for draft principle 3 relating to guidelines and criteria for safe use.

61. The Committee endorsed the recommendation of the Sub-Committee that the item should be retained on its agenda as a priority item for the next session.

62. Having reviewed the work of the Scientific and Technical Sub-Committee and the Legal Sub-Committee on this issue, the Committee recommended that the Working Group on the Use of Nuclear Power Sources in Outer Space should be reconvened at the next session of the Scientific and Technical Sub-Committee.

4. Space transportation systems

63. The Committee noted that, in accordance with General Assembly resolution 44/46, the Sub-Committee had continued consideration of the item relating to space transportation systems and their implications for future activities in space.

64. The Committee took note of the progress being achieved in the various programmes in operation or planned by Brazil, China, India, Iraq, Japan, the USSR, the United States and ESA.

65. The Committee endorsed the recommendation of the Sub-Committee to continue consideration of the item at its next session.

5. Examination of the physical nature and technical attributes of the geostationary orbit; examination of its utilization and applications, including, inter alia, in the field of space communications, as well as other questions relating to space communications developments, taking particular account of the needs and interests of developing countries

66. The Committee noted that, in accordance with General Assembly resolution 44/46, the Sub-Committee had continued the consideration of the item relating to the geostationary orbit.

67. The Committee noted that delegations had reiterated and elaborated on the views concerning the question of the geostationary orbit that had been expressed at earlier sessions and reflected in earlier reports of the Committee and its two sub-committees.

68. The Committee noted that ITU had held a Plenipotentiary Conference in 1989 and had made a number of decisions bearing on outer space matters. The Committee expressed its appreciation to ITU for submitting its twenty-ninth annual progress report on telecommunication and the peaceful uses of outer space (A/AC.105/462). Some delegations, in their statements, stressed the important technical scope of the work of ITU, while drawing attention to the competence of the Committee on the Peaceful Uses of Outer Space in preparing policy decisions that refer to the geostationary orbit.

69. The Committee endorsed the recommendation of the Sub-Committee that it continue consideration of the item at its next session.

6. Matters relating to life sciences, including space medicine; progress in the geosphere-biosphere (global change) programme; matters relating to planetary exploration; matters relating to astronomy

70. The Committee noted that, in accordance with General Assembly resolution 44/46, the Sub-Committee had continued to consider the items concerning matters relating to life sciences, including space medicine; progress in the geosphere-biosphere (global change) programme; matters relating to planetary exploration; and matters relating to astronomy.

71. The Committee noted with satisfaction that a number of special presentations had been made on those items by specialists from various countries. The Committee expressed its appreciation to COSPAR for its informative presentation on progress in the international geosphere-biosphere (global change) programme. It also took note of the Telemedicine Spacebridge, which had connected medical centres in the United States with Armenia and the town of Ufa in the USSR, following a severe earthquake in Armenia and a train accident in Ufa.

72. The Committee endorsed the recommendation of the Sub-Committee that COSPAR and IAF should be invited to present reports on progress in national and international space activities related to the Earth environment and that COSPAR should be invited to arrange a special presentation on progress in the geosphere-biosphere (global change) programme.

73. The Committee endorsed the recommendation of the Sub-Committee that the title of the item "Progress in the geosphere-biosphere (global change) programme" should be changed to "Progress in national and international space activities related to the Earth environment, in particular progress in the geosphere-biosphere (global change) programme".

74. The Scientific and Technical Sub-Committee, when discussing geosphere-biosphere related activities, should particularly highlight those scientific activities in which developing countries can play a meaningful role. The Outer Space Affairs Division of the Secretariat should, within existing resources, arrange for training and support for developing countries in those scientific activities.

75. The Committee erdorsed the decision of the Sub-Committee to continue consideration of the above items at its next session.

7. Themes fixed for special attention at the 1990 and 1991 sessions of the Scientific and Technical Sub-Committee

76. The Committee noted that, in accordance with General Assembly resolution 44/46, the Sub-Committee had considered the item relating to the theme fixed for special attention at the 1990 session of the Scientific and Technical Sub-Committee: "The use of space technology in terrestrial search and rescue and in disaster relief activities".

77. The Committee noted with satisfaction that, in accordance with Assembly resolution 44/46, COSPAR and IAF had conducted a symposium on the theme. The

Committee expressed its appreciation to COSPAR and IAF for their generous support of the work of the Sub-Committee.

78. The Committee also noted with satisfaction the highly successful international project for satellite-aided search and rescue known as COSPAS-SARSAT. The Committee endorsed the recommendation of the Sub-Committee that all Member States and relevant international organizations consider utilizing to the maximum extent possible the COSPAS-SARSAT system for global search and rescue activities.

79. The Committee further noted with satisfaction that some developing countries, such as China, had started to use space technology for fighting disasters and reducing losses of life and property.

80. The Committee further endorsed the recommendation of the Sub-Committee that the new theme fixed for special attention at the 1991 session of the Sub-Committee should be "Applications of airborne and satellite remote sensing for prospecting mineral and ground-water resources and for monitoring and managing biological resources, with emphasis on agriculture, taking into particular account the needs of developing countries". It also endorsed the recommendation of the Sub-Committee that COSPAR and IAF should be invited to arrange a symposium on that theme, with as wide a participation as possible, to be held during the first week of the Sub-Committee's session after the adjournment of its meetings.

81. The Committee had before it a summary of the scientific and technical presentations made during the twenty-seventh session of the Scientific and Technical Sub-Committee (A/AC.105/459).

82. Some delegations, while recognizing the significance of the scientific and technical presentations to the Sub-Committee, expressed the view that the presentations should not interfere with the substantive work of the Sub-Committee, which should have priority over such presentations.

83. Some delegations expressed the view that the unique role of the Sub-Committee as an intergovernmental forum should be strengthened. Those delegations further expressed the view that the task of the Sub-Committee was to discuss policies and guidelines for international co-operation in space activities and to provide agreed technical parameters in order to help the development of the international regulation of the peaceful uses of outer space.

84. The Committee expressed its sincere congratulations and deep gratitude tc Professor John H. Carver upon his completion of 20 years as Chairman of the Scientific and Technical Sub-Committee for his dedicated service and leadership. During that long period of time, his devotion to the work of the Sub-Committee has been an important factor in its achievements in the promotion of international co-operation in the peaceful uses of outer space.

8. International Space Year

85. The Committee noted that the General Assembly, in paragraph 20 of its resolution 44/46, had endorsed the initiative of international scientific organizations and bodies to designate 1992 as International Space Year. It also noted that the Assembly, in paragraph 21 of the same resolution, had endorsed the Committee's recommendation that international co-operation should be promoted

through the International Space Year, which should be carried out for the benefit and in the interests of all States, taking into particular account the needs of developing countries and that, in that context, the training and educational capabilities of the United Nations Programme on Space Applications should be utilized to bring about a meaningful role for the United Nations through voluntary contributions and without any impact on the regular budget of the United Nations or the existing programme of work of the Programme.

86. The Committee agreed that International Space Year provided an opportunity to strengthen and expand international co-operation in the peaceful uses of outer space and noted the importance of including all countries in the activities of the Year.

87. The Committee had before it the proposed programme for the participation of the United Nations in the International Space Year, as outlined in document A/AC.105/445 and Add.1 and 2. The Committee expressed its appreciation to those Member States and international organizations that had offered voluntary contributions in support of those activities.

88. The Committee urged other Member States and international organizations to consider supporting additional scientific and technical activities in co-operation with the United Nations as part of International Space Year. The Committee noted that it was particularly important to increase voluntary contributions for the activities of the Year, to be carried out through the United Nations Programme on Space Applications, since the Programme was dependent on voluntary contributions for most of its activities.

89. The Committee took note of national and international activities being planned for the International Space Year. The Committee noted the role of the Space Agency Forum on International Space Year in planning and organizing for the Year. The Committee also noted the proposal in the context of the international geosphere-biosphere programme for a series of polar-orbiting satellites called "PEACE" (Protection of Environment for Assuring Cleaner Earth) with sensors for continuous global monitoring of the Earth's environment.

90. The Committee took note of the plans of COSPAR and IAF for celebrating 1992 as International Space Year with a joint World Space Congress to be held in Washington D.C. and a major programme on "Mission to Planet Earth", with an emphasis on the participation of all countries, in particular developing countries.

91. The Committee took note of the proposal that the Committee and its sub-committees should convene a relatively solemn formal meeting in 1992 to mark International Space Year and that a special meeting should be held during the General Assembly session to commemorate International Space Year.

92. The Committee noted the primary focus of proposed activities for the Year on the use of space technology for studying and monitoring the environment. It also noted that the United Nations Conference on Environment and Development was being planned for 1992. The Committee endorsed the recommendation of the Scientific and Technical Sub-Committee that Member States, in planning their activities for the Year, consider ways in which those activities could complement the efforts under way for the Conference.

93. The view was expressed that the Scientific and Technical Sub-Committee might organize an evaluation of the impact of the International Space Year programmes on developing countries in their efforts to promote the peaceful uses of outer space. This was particularly relevant since International Space Year coincides with the tenth anniversary of the Second United Nations Conference on the Exploration and Peaceful Uses of Outer Space.

9. Space and Earth environment

94. The Committee noted that the General Assembly, in its resolution 44/46, had recommended that more attention should be paid to all aspects related to the protection and preservation of the outer space environment, especially those potentially affecting the Earth's environment.

95. The Committee also noted that the General Assembly, in the same resolution, had considered that it was essential that Member States pay more attention to the problem of collisions with space debris and called for the continuation of national research on the question.

96. The Committee agreed that space debris was an issue of concern to all nations and that it could be an appropriate subject for discussion by the Committee in the future.

97. The Committee noted the importance of satellite remote sensing for monitoring the Earth's environment, and in particular for studying and monitoring global change.

C. Report of the Legal Sub-Committee on the work of its twenty-ninth session (agenda item 6)

98. The Committee took note with appreciation of the report of the Legal Sub-Committee on the work of its twenty-ninth session (A/AC.105/457 and Corr.1), which contained the results of its deliberations on the items assigned to it by the General Assembly in its resolution 44/46.

99. The Committee noted that the Sub-Committee had elected Mr. Václav Mikulka (Czechoslovakia) as its Chairman, to succeed Mr. Stanislav Suja (Czechoslovakia). The Committee expressed its appreciation to Mr. Suja for his work during his term as Chairman.

1. The elaboration of draft principles relevant to the use of nuclear power sources in outer space

100. The Committee noted that the Sub-Committee, in giving detailed consideration to this item during its twenty-ninth session, had re-established its Working Group on the item, under the chairmanship of Mr. H. Winkler (Austria).

101. The Committee noted the work carried out by the Working Group, as reflected in the report of the Legal Sub-Committee (A/AC.105/457, paras. 23-30 and annex I) and welcomed the consensus reached on the text of draft principle 3 relating to guidelines and criteria for safe use.

102. Some delegations noted that they had joined the consensus on draft principle 3 despite their positions on important points, which should be considered later when the principles are revised. Some other delegations expressed the view that other points were to be considered by the Scientific and Technical Sub-Committee and by the Legal Sub-Committee in order to facilitate acceptance of the complete set of principles.

103. Pursuant to the recommendation of the Sub-Committee (A/AC.105/457, para. 28), an informal meeting was held during the session of the Committee with a view to proceeding to a first exchange of views of document A/AC.105/C.2/L.154/Rev.6 and to paving the way for further constructive work at the next session of the Sub-Committee. The Committee noted with satisfaction that some progress had been made in the informal meeting and in the ensuing informal consultations among interested delegations, in particular on draft principles 9 and 12 as contained in document A/AC.105/C.2/L.154/Rev.6.

104. The Committee noted that, as a result of these consultations, a basis for consensus in the near future was provided on a text for draft principle 8 and on the deletion of draft principle 11. Draft principle 8 could read as follows:

Principle 8: Responsibility

1. In accordance with article VI of the Treaty on Principles Governing the Activities of States in the Exploration and Use of Outer Space, including the Moon and Other Celestial Bodies, States shall bear international responsibility for national activities in outer space involving the use of nuclear power sources, whether such activities are carried on by governmental agencies or by non-governmental entities, and for assuring that such national activities are carried out in conformity with that Treaty and the recommendations contained in these principles.

2. When activities in outer space involving the use of nuclear power sources are carried on by an international organization, responsibility for compliance with the aforesaid Treaty and the recommendations contained in these principles shall be borne both by the international organization and by the States participating in it.

105. Some delegations expressed the view that there was a need to define the term "launching State". Some of them felt that it might be inappropriate to impose the obligation to conduct a safety assessment on a State that launched a satellite carrying a nuclear power source manufactured by another State.

106. With regard to draft principle 4 relating to safety assessment, it was noted that a Member State had announced that it would make publicly available, prior to launch, the results of safety assessments and that it would submit information to the Secretary-General on how interested States could obtain those results.

107. Some delegations expressed the view that if draft principle 4 provided for a publicly available safety assessment prior to each launch, then there might be no need for draft principle 2 on notification of the presence on board a space object of a nuclear power source. Other delegations expressed the view that the nature and content of principles 2 and 4 were different and that they must be considered separately.

108. Some delegations expressed the view that, once consensus had been reached on remaining principles, the Sub-Committee should review the complete set of principles in order to consider whether any adjustments would be necessary in order to ensure that the principles were properly interrelated and balanced and that they would achieve their intended effect.

109. The Committee urged the Legal Sub-Committee to make every effort in its work on the elaboration of the outstanding draft principles in order to arrive at a final text of draft principles relevant to the use of nuclear power sources in outer space as early as possible.

110. The Committee noted that the delegations of Canada and the Federal Republic of Germany had submitted a revised version of the Working Paper submitted by Canada (A/AC.105/C.2/L.154/Rev.6). The revised version (A/AC.105/C.2/L.154/Rev.7) is contained in annex II to the present report.

111. The Committee recommended that the Legal Sub-Committee continue consideration of the item at its next session.

2. Matters relating to the definition and delimitation of outer space and to the character and utilization of the geostationary orbit, including consideration of ways and means to ensure the rational and equitable use of the geostationary orbit without prejudice to the role of the International Telecommunication Union

112. The Committee noted that the Legal Sub-Committee, in accordance with General Assembly resolution 44/46, had continued to consider this item through its Working Group under the chairmanship of Mr. E. Zawels (Argentina).

113. The Committee noted that a variety of views had been expressed on the question of the definition and delimitation of outer space, as reflected in chapter II (paras. 31-37) and annex II of the report of the Legal Sub-Committee (A/AC.105/457 and Corr.1). Those views were elaborated on and reiterated during the current session of the Committee. Some delegations expressed the view that the question of delimitation was part of the more comprehensive legal question of the applicability of treaties and that it was necessary to have a conventionally defined boundary between air and outer space. Some delegations supported the proposal that any object launched into outer space be considered as being in outer space at all stages of its flight after launch at which its altitude above sea level was 110 kilometres or more. Other delegations reiterated the view that the need for such a definition or delimitation had not yet been established, that attempts to establish prematurely such a definition or delimitation might complicate and impede progress in the peaceful exploration and use of outer space, that consideration of the matter was not productive and that the question of the definition and delimitation of outer space should be removed from the agenda or set aside. Other delegations did not agree with the proposal to delete this item from the agenda. Still other delegations expressed the view that, in dealing with the question of delimitation, account should be taken of the characteristics of the geostationary orbit.

114. The Committee noted the proposal that the Legal Sub-Committee should, at its 1991 session, begin a preliminary exchange of views on the international legal issues relating to prospective flights of aerospace vehicles.

115. The Committee took note of the deliberations on the question of the geostationary orbit as contained in the report of the Legal Sub-Committee. The Committee noted that an exchange of views had taken place on this item, particularly on five general ideas formulated in the "working non-paper" (A/AC.105/430, annex II, para. 20).

116. Some delegations expressed the view that the geostationary orbit was part of outer space and that its legal status was properly defined by the 1967 Treaty on Principles Governing the Activities of States in the Exploration and Use of Outer Space, including the Moon and Other Celestial Bodies 2/ and by the appropriate rules of ITU, which had the value of a treaty. Other delegations expressed the view that the roles of ITU and of the Sub-Committee were complementary and that a special legal régime should be established to regulate the use of the geostationary orbit. Some delegations reiterated that the geostationary orbit, because of its own characteristics, required a special legal régime to regulate access and utilization by all States, taking into account the needs of developing countries and, in particular, the characteristics of the equatorial countries.

117. The view was expressed that as a way of helping in future work on this subject, the Secretariat should elaborate a factual study, based on previous reports and statements, so as to identify areas where consensus existed, areas where agreement existed among the majority of Member States, and areas where differences of views had not appeared.

118. The Committee recommended that the Legal Sub-Committee continue consideration of the item at its next session.

3. Consideration of the legal aspects related to the application of the principle that the exploration and utilization of outer space should be carried out for the benefit and in the interests of all States, taking into particular account the needs of developing countries

119. The Committee noted that, in accordance with General Assembly resolution 44/46, the Legal Sub-Committee had considered the above item.

120. The Committee also noted that the Sub-Committee had established a Working Group on the item and had elected Mr. Raimundo González (Chile) as its Chairman. The Committee further noted that the Working Group would be convened at the next session of the Legal Sub-Committee.

121. The Committee endorsed the recommendation of the Legal Sub-Committee that the Secretary-General reissue his request to Member States for information on their national legal frameworks and international agreements (A/AC.105/457, para. 54).

122. The Committee noted that a variety of views had been expressed under the new item, as reflected in chapter III (paras. 38-61) of the report of the Legal Sub-Committee (A/AC.105/457 and Corr.1).

123. Some delegations expressed the view that, in considering international agreements entered into by Member States that were relevant to the principle that the exploration and use of outer space should be carried out for the benefit and in the interests of all countries, the Sub-Committee should take into account

treaties, conventions, agreements, principles, declarations and resolutions related to international co-operation in outer space and in general.

124. The view was expressed that initially a review of the norms of national and international law relating to international co-operation in outer space should be undertaken and that subsequently proposals could be formulated to develop further such international co-operation.

125. Some delegations expressed the view that technological differences among States had brought about inequalities in the benefits derived from space activities. They emphasized the need not only to extend the benefits of space science and technology to all countries, but also to ensure non-discriminatory access to the means for developing their own space programmes. They felt that the Working Group should elaborate a set of legal principles with a view to institutionalizing international co-operation. The view was also expressed that the Working Group had not been given a negotiating mandate.

126. Some delegations expressed the view that, for space to become the "province of mankind", non-discriminatory access to space technology should be extended to all nations so as to give them real access to space. They expressed their concern over restrictions on co-operation resulting from discriminatory regulations limiting access to technical expertise, equipment and knowledge related to space activities. They considered that these practices were contrary to the 1967 Treaty on Principles Governing the Activities of States in the Exploration and Use of Outer Space, including the Moon and Other Celestial Bodies, which conceived peace as intimately related to freedom of information and knowledge and to active dialogue and co-operation among States in order to promote the peaceful uses of outer space.

127. The Committee recommended that the Legal Sub-Committee should continue the consideration of the item at its next session.

D. Spin-off benefits of space technology: review of current status (agenda item 8)

128. In accordance with paragraph 27 of General Assembly resolution 44/46, the Committee took up the consideration of the above item and heard special presentations on the question by experts from the United States and the USSR (see para. 16 above).

129. The Committee agreed that spin-offs of space technology were yielding substantial benefits in many fields. In medicine, the Committee noted that spin-offs of space technology were providing new techniques for diagnosis and treatment, including an electronic "temperature pill", a portable X-ray device and surgical instruments. In the field of safety, space activities had resulted in the development of anti-glare filters, heat-resistant materials and protective systems for fire-fighters. Spin-offs for manufacturing and construction included dry lubricants, new construction materials, high-performance machines, protective coatings, optical instruments and electronics. Space technology had also given rise to spin-off benefits in the areas of art preservation, environmental protection and agriculture. The Committee noted that the importance of those benefits was growing rapidly.

130. The Committee also noted the importance of international co-operation in developing spin-off benefits of space technology and in ensuring that all countries, in particular developing countries, had access to those benefits.

131. The Committee agreed that there was a need to examine ways to strengthen and enhance international co-operation in the field of spin-off benefits of space technology, giving particular attention to those spin-offs which could address the social and economic needs of developing countries. The view was also expressed that consideration should be given to organizing a seminar on spin-off benefits for developing countries as part of the Programme on Space Applications.

132. The Committee recommended that the Outer Space Affairs Division undertake a study of spin-offs, on the basis of information provided by Member States.

133. The Committee also recommended that space agencies in Member States might specifically consider the allocation of a small portion of their resources to encourage spin-off applications of space technology through technology transfer and exchange of technical information on promotional terms to developing countries.

134. Some delegations expressed the view that, in considering the question of the spin-off benefits of space technology, the Committee should examine ways to strengthen and enhance international co-operation in this field through, inter alia, the study of the possibilities of providing access to such spin-offs to all countries, particularly the developing countries. In that context, attention should be given to those spin-offs which can have an impact by addressing the urgent and pressing social needs of developing countries.

135. Some delegations emphasized the theme of universal access to benefits derived from space technology and they highlighted the complexity of the interests and elements involved. In this respect, they felt that promoting as wide a participation as possible of all countries in those benefits is a great challenge which requires new ways of thinking. Also, these delegations were of the opinion that the United Nations should contribute to the development of adequate procedures to disseminate those benefits, based on interaction, co-ordination and organization among countries, public and private organizations and individuals in order to utilize available technology, financing programmes, training programmes, and applications techniques, in order to solve specific problems on a case-by-case basis.

E. Other matters

(a) Observer status

136. At its 348th meeting, the Committee decided to grant, at their request, permanent observer status to the International Law Association (ILA) and to the International Society for Photogrammetry and Remote Sensing (ISPRS).

137. The Committee agreed that, in the future, non-governmental organizations which request observer status with the Committee should have consultative status with the Economic and Social Council and should, as part of their programmes, be concerned with matters falling within the competence of the Committee.

(b) Other matters

138. The Committee noted with appreciation the participation in its work and that of its sub-committees by the representatives of ESA, INTELSAT, the International Organization for Space Communications (INTERSPUTNIK), the Council on International Co-operation in the Study and Utilization of Outer Space (INTERCOSMOS), COSPAR and IAF. The Committee requested that concerned organizations continue to keep it informed of their activities relating to the peaceful uses of outer space.

139. The Committee recommended that the Secretariat invite Member States to submit annual reports on their space activities. In addition to information on national and international space programmes, the reports could include information in response to requests from the Working Group of the Whole as well as information on spin-off benefits of space activities and other topics as requested by the Committee and its subsidiary bodies.

140. Some delegations expressed the view that there was a need for the Committee and its sub-committees to play a special role in the orchestration of the necessary assistance and support for developing countries in their efforts towards the exploration and utilization of space for their benefit through transfer of knowledge, technology and equipment from developed countries.

F. Future work

141. The Committee noted the views expressed by the Scientific and Technical Sub-Committee, as contained in paragraphs 105 to 108 of its report (A/AC.105/456), and endorsed the recommendations contained in those paragraphs concerning the agenda of the twenty-eighth session of the Sub-Committee.

142. Regarding the agenda of the Legal Sub-Committee, the Committee recommended that the Sub-Committee, at its thirtieth session, should:

(a) Continue, through its Working Group, the elaboration of draft principles relevant to the use of nuclear power sources in outer space;

(b) Continue, through its Working Group, its consideration of matters relating to the definition and delimitation of outer space and to the character and utilization of the geostationary orbit, including consideration of ways and means to ensure the rational and equitable use of the geostationary orbit without prejudice to the role of ITU;

(c) Continue consideration, through its Working Group of the legal aspects related to the application of the principle that the exploration and utilization of outer space should be carried out for the benefit and in the interests of all States, taking into particular account the needs of developing countries.

143. The Committee recommended that the Legal Sub-Committee, on a permanent basis, should rotate each year the order of consideration of substantive agenda items. Accordingly, at its next session, the Sub-Committee would first take up matters relating to the definition and delimitation of outer space and the geostationary orbit, followed by the new item on outer space benefits and followed by the elaboration of draft principles on nuclear power sources.

144. Some delegations expressed the view that the traditional three-week duration of the sessions of the Legal Sub-Committee was not necessary, as had been demonstrated at the current year's session, and that a reduction in the duration would facilitate progress in the Sub-Committee and would result in the more efficient utilization of scarce conference service resources. Other delegations felt that the sessions of the Legal Sub-Committee should be maintained at three weeks to allow sufficient time for negotiations on the complex legal issues before the Sub-Committee and to guarantee substantive results.

145. Some delegations expressed the view that the Legal Sub-Committee should cease the practice of holding alternate sessions at Geneva, in accordance with the recommendations of the Advisory Committee on Administrative and Budgetary Questions, since there were no discernible benefits to justify either the additional costs thereby incurred by the Organization or the continued exception to the General Assembly principle that United Nations bodies should meet at their headquarters. Other delegations expressed the view that the Sub-Committee's practice of meeting every other year at Geneva was based on a long-standing consensus agreement, that it had been confirmed by the General Assembly, and that it was useful and, therefore, should be continued in accordance with General Assembly resolution 40/243 of 18 December 1985.

146. The Committee took note of the measures that had been adopted at the twenty-ninth session of the Legal Sub-Committee in order to improve the utilization of conference services. The Committee endorsed the agreement of the Sub-Committee that a similar organization of work would serve as the basis for organizing the work of the Sub-Committee's thirtieth session. The Committee recommended that the Chairman of the Sub-Committee, in co-operation with delegations, should continue his efforts to improve the efficiency of utilization of conference resources by the Sub-Committee.

147. With regard to the question of the venue of the Legal Sub-Committee's future sessions, the Committee noted the different views expressed on the question. The Committee noted that the next session of the Sub-Committee would be held in New York. However, it agreed that discussions would continue at its next session with a view to reaching agreement on the venue of its subsequent sessions, taking into account General Assembly resolution 44/201 B (sect. III) of 21 December 1989.

G. Schedule of work of the Committee and its subsidiary bodies

148. The Committee noted with appreciation the invitation by the Government of Austria to hold the thirty-fourth session of the Committee at Graz, Austria. The Committee recommended that its thirty-fourth session be convened at Graz from 27 May to 7 June 1991, hosted by the Government of Austria.

149. The Committee indicated the following tentative timetable for 1991:

	Dates	Location
Scientific and Technical Sub-Committee	19 February-1 March	New York
Legal Sub-Committee	25 March-12 April	New York
Committee on the Peaceful Uses of Outer Space	27 May-7 June	Graz, Austria

150. The Committee recommended that every effort be made in the future to ensure that the sessions of other committees reporting to the Special Political Committee of the General Assembly, particularly the Committee on Peace-keeping and the Committee on Information, are scheduled so as not to overlap with the meetings of the Committee on the Peaceful Uses of Outer Space and its subsidiary bodies.

151. The Committee agreed that in the future every effort should be made to avoid scheduling sessions of the Committee and its subsidiary bodies in periods during which official holidays fall.

Notes

1/ Report of the Second United Nations Conference on the Exploration and Peaceful Uses of Outer Space, Vienna, 9-21 August 1982 (A/CONF.101/10 and Corr.1 and 2).

2/ General Assembly resolution 2222 (XXI).

ANNEX I

Opening statement by the Chairman of the Committee on the Peaceful Uses of Outer Space

1. Distinguished delegates, may I welcome all of you most cordially to the thirty-third session of the Committee on the Peaceful Uses of Outer Space. Equally welcome are the representatives of governmental and non-governmental international organizations which, over the years, have provided so many services and much co-operative support to this Committee.

2. My remarks will, at the outset, briefly summarize some of the most recent and most outstanding developments in the peaceful uses of outer space. I will also review, for your benefit, the results of the 1990 sessions of our two Sub-Committees.

3. In recent years, the emergence of a new era of world-wide détente has not failed to be reflected in the work of the Committee. As the climate of international affairs continues to improve, it will also help our deliberations this year. Together with our own traditions of consensus and co-operation, this should help us to fulfil our mandate as the "focal point", the "plaque tournante", of international co-operation in the peaceful uses of outer space.

4. Now for some of the recent events in outer space. April of this year marked the thirtieth anniversary of the launching of the first polar-orbiting meteorological satellite. That event signalled the beginning of the practical applications of space technology in our daily lives and the beginning of international sharing of environmental satellite data. Since then, space technology has given us unprecedented capabilities for global communications, for weather forecasting and storm warning and for the development and management of natural resources. Space observations have also given us new insights into the global climate and the long-range effects of human activities on our environment.

5. We should never fail to appreciate the advantages that progress in space exploration provides to humanity. Let me give you an example that clearly illustrates this. After the devastating earthquake in Armenia and the Ufa train accident in the Soviet Union, a unique medical spacebridge was established to help the victims. From 4 May to 28 July 1989, the spacebridge provided communication links between facilities treating the victims and four United States medical centres through international and domestic satellites. Two or three centres were connected almost every day, and there were 31 larger teleconferences, each about four hours long, involving several hundred physicians. Armenian physicians, based upon the discussions with United States consultants, modified their diagnosis and treatment in approximately 25 per cent of the 210 patient consultations. In addition, many additional patients benefited from information transmitted during those consultations. Based on this very successful experience, a permanent subgroup under the auspices of the United States/USSR Joint Working Group on Space Biology and Medicine is to be established to further develop satellite telemedicine procedures and to find national or international organizations to continue the spacebridge for earthbound disasters.

6. Distinguished delegates, let me give you a second example of the recent use of space technology, also from the field of telecommunications. With innovations in

transmission technology and miniaturization, the cost of satellite terminals has fallen in the last few years from about $20,000 to $4,000, and antennas as small as 15 cm are sufficient for communication through geostationary satellites. Consequently, not only can passengers of large ocean liners or major airlines make commercial public satellite telephone calls, but this technology is also becomming available to truckers, small ships, light aircraft operators and oil riggers. Two American companies are currently offering two-way satellite messaging services to mobile terminals. By evaluating tests performed last year on 120 trucks, it was concluded that satellite messaging could cut 60 per cent from the cost of long-distance communications with drivers. More important, the drivers reduced the number of miles driven without paying loads by 0.5 per cent. Up to 50 trucking companies around Europe are participating in major, Europe-wide trials of mobile satellite communications this year. This commercial technology is based on the same principles as the international COSPAS/SARSAT search and rescue system, which has already saved more than 1,200 human lives.

7. Since the Committee met last year, there have been many accomplishments in the field of outer space that I want to mention before I comment upon the work of the two Sub-Committees this year.

8. In 1989, the Soviet Union orbited 95 satellites in 74 launches. These space objects included Cosmos, Gorizont, Meteor, Molniya, Nadezhda, Photon, Raduga and Resurs satellites. The orbital station Mir, after a short period unoccupied, is again serving as a base for manned space research. Besides regular transport spacecraft of the Soyuz TM and Progress type, the large module Kvant 2 was docked with the main station block. This significantly increased the research capabilities of the Mir complex and made it possible to test a new personnel manoeuvring unit during extravehicular activities by Cosmonauts Victorenko and Serebrov in February 1990.

9. In international co-operation, the Soviet Union launched the ninth Biocosmos recoverable satellite, the astrophysical observatory Granat 1 with instruments provided by France, Denmark and Bulgaria, and the geophysical satellite Intercosmos 24 with its Czechoslovak sub-satellite Magion 2. Further international projects are in preparation, including flights of astronauts from other countries to the Mir station.

10. The United States of America is continuing to use its Space Shuttle fleet regularly. There were five flights with five astronaut crews last year and more are scheduled for this year. The highlights of the shuttle programme include the successful recovery of the Long Duration Exposure Facility after five years and nine months in orbit. It is expected that results from the 57 experiments will substantially improve our understanding of the space environment, in particular with respect to space debris and micrometeorites, a problem of considerable concern for many member States of the Committee on the Peaceful Uses of Outer Space.

11. The successful deployment of the Hubble Space Telescope from Space Shuttle Discovery on 25 April this year marks the beginning of a new era in astronomical research. This telescope, a co-operative project with ESA, should provide for the next 15 years unique information about distant celestial objects such as quasars, galaxies and gaseous nebulae, as well as monitor atmospheric and surface phenomena on the planets in our solar system.

12. Fundamental new evidence concerning the origins and present state of the Universe are certain to be found by astronomers using data from the unmanned Cosmic Background Explorer satellite launched in November, and from the ASTRO observatory to be operated by the Shuttle astronauts this year. This is an extremely exciting time for astronomers and planetary scientists. They have already received unprecedented data from the Voyager 2 encounter with Neptune in August 1989 and from the all too brief Phobos 2 observations of Mars and Phobos. Furthermore, space scientists should expect a large flow of data from the Magellan space probe after its arrival into orbit around Venus in August this year and from the Galileo spacecraft during its six year flight to Jupiter via Venus, Earth and possibly a few asteroids. Last but not least, with the launch of its lunar probe "Hiten" on 24 January 1990, Japan became the third nation to send a spacecraft towards the Moon. This successful test of the swing-by technique is important for the future lunar and planetary missions to be undertaken by Japan.

13. The majority of spacecraft launched into space since the last session of our Committee are devoted to practical applications of space technology, including communications, remote sensing and meteorology. International co-operation is very extensive in this field, with many satellites being launched by State and commercial organizations for other users as well as for their own programmes. As a result, an increasing number of countries are directly involved in space activities, either by developing their own launching capabilities, by building, buying or leasing satellites, or by installing ground stations for use with national or international satellites.

14. The greatest share of international space launchings belongs to the Arianespace company. In eight launches in 1989 and 1990, it successfully orbited 17 satellites for the European Space Agency (ESA), France, Germany, Federal Republic of, the International Telecommunications Satellite Organization (INTELSAT), Japan, Sweden and the United Kingdom. After the failure of the Ariane launcher No. 36 on 22 February 1990, flights were suspended, but are expected to resume soon since the cause of the problem has apparently been found. We are all aware that research and development activities will inevitably have failures as well as successes, and that through these failures, science and technology can advance further as we learn from our failures.

15. On 7 April 1990, China launched, for the first time, a foreign telecommunications satellite. The satellite called Asiasat, was built by the Hughes Aircraft Company and is owned by a Hong Kong based consortium. This satellite was formerly called Westar 6, and when first launched into space, it failed to reach geostationary orbit and was recovered by a space shuttle in 1984. Another communications satellite recovered from low-Earth orbit by a space shuttle was also launched for the second time on 13 April 1990. The satellite, called Palapa B-2R, was launched by an American commercial Delta 2 rocket and will serve Indonesia.

16. Against this background, rich in exciting and expanding space events, let us now turn to the agenda items before the Committee.

17. As in past years, the General Assembly, at its forty-fourth session, instructed us to consider as a matter of priority "Ways and means of maintaining outer space for peaceful purposes" and to report thereon to its forty-fifth session. As you may recall, the Committee had reached broader consensus on this item last year. I am convinced that we could move even further in this direction

to facilitate progress on spreading the benefits derived from space exploration to all countries on this Earth.

18. Before going into detail about the work of the two Sub-Committees, I should like to express, on behalf of the Committee, our sincere congratulations and deep gratitude to Professor John H. Carver of Australia upon his completion of 20 years as Chairman of the Scientific and Technical Sub-Committee. The Committee is much indebted to him and also to the newly elected Chairman of the Legal Sub-Committee, Mr. Vaclav Mikulka of Czechoslovakia, for the smooth and productive functioning of its subsidiary bodies.

19. The Committee has before it the report of the twenty-seventh session of the Scientific and Technical Sub-Committee, which is contained in document A/AC.105/456.

20. As delegations will recall, the expansion and reorientation of the United Nations Programme on Space Applications is an integral part of the implementation of the recommendations of the Second United Nations Conference on the Exploration and Peaceful Uses of Outer Space. a/ The Sub-Committee, therefore, has continued its practice of combining consideration of these two items, keeping in mind the position of the General Assembly, which, at its forty-fourth session, once again emphasized the urgency and importance of implementing the recommendations of the 1982 Conference. Once more, the General Assembly identified, in particular, four urgent items for consideration by the Committee.

21. In accordance with General Assembly resolution 44/46 of 8 December 1989, the Scientific and Technical Sub-Committee re-convened the Working Group of the Whole to evaluate the implementation of the recommendations of the Second United Nations Conference. The report of the Working Group is contained in annex II of the Sub-Committee's report (A/AC.105/456). The Working Group was ably chaired by Mr. Raimundo González of Chile.

22. In its 1988 and 1989 reports, the Working Group of the Whole recommended that the Committee request all States, particularly those with major space or space-related capabilities, as well as international organizations with space-related activities, to inform the Secretary-General annually, as appropriate, about those space activities that were or could be the subject of greater international co-operation. At this session, the Working Group reiterated this recommendation, indicating that particular emphasis should be placed on the needs of the developing countries.

23. The Working Group of the Whole also addressed several requests to the Outer Space Affairs Division for the preparation of reports on space activities, including the following: (a) a list of space technology experts to be updated periodically; (b) an annual report on the arrangements the Secretariat has made with other organs, bodies and organizations of the United Nations system to utilize fully the available resources and to secure additional financial support from other sources for continued implementation of the United Nations Programme on Space Applications; (c) a regularly updated report on the resources and technological capabilities of States in the field of space activities, as well as on the capabilities of States in the areas of education, training, research and fellowship opportunities for the promotion of co-operation in the peaceful uses of outer space; and (d) a report on the economic aspects of the implementation of the recommendation in paragraph 9 (b) of General Assembly resolution 44/46 on the

strengthening and expansion of data banks at the national and regional levels and the establishment of an international space information service.

24. The Working Group, taking into account paragraph 9 (c) of the same resolution, recommended that the United Nations should lead an international effort to establish regional centres for space science and technology education in existing national and regional educational institutions in the developing countries.

25. The Working Group further noted that, in the case of priority studies recommended by UNISPACE 82, information from different reports should be integrated and new information should be compiled in order to provide Member States with comprehensive studies. Based upon the results obtained, the Working Group observed, a few specific studies, on such topics as "integrated land and water resources management for rural development", "remote and rural area communications and broadcasting", "forest resources management", and others, should be carried out to demonstrate the potentials of space technology. The Working Group suggested that some of these studies might be carried out as part of the United Nations activities for International Space Year.

26. These are some of the recommendations made by the Working Group of the Whole, and they continue to strengthen the basis for further progress in the implementation of the recommendations of the Second United Nations Conference on the Exploration and Peaceful Uses of Outer Space. I should like to repeat the remarks I made last year, however, that the information requested by the Working Group of the Whole, if it is to be useful, must be carefully considered. The reports and studies carried out provide a basis for progress in the implementation process only if the Committee and its Member States are prepared to act on them.

27. The Scientific and Technical Sub-Committee, as in previous years, reviewed the wide range of activities of the United Nations Programme on Space Applications and commended the work carried out during the past year. The Sub-Committee also approved or noted the activities proposed for 1990 and 1991.

28. While noting with appreciation that, since its last session, additional contributions had been offered by various Member States and organizations, the Sub-Committee, this year, continued to express its concern over the meagre financial resources available for carrying out the Programme. It appealed to Member States once more to support the Programme through voluntary contributions. Let us hope that this appeal will not fall on deaf ears and that, considering the growing importance of space science and technology for the development process, Member States and other donors will strongly support the efforts being made to strengthen the Programme's financial situation.

29. I should like, here, to draw the Committee's attention briefly to the question of co-ordination of space activities within the United Nations system and inter-agency co-operation. The Sub-Committee, in pointing out the role of the Committee and its subsidiary bodies as the focal point for the co-ordination of space-related activities in the United Nations, continued to stress the necessity of ensuring continuous and effective consultations and co-ordination in the field of outer space activities among organizations within the United Nations system and the avoidance of duplication of activities.

30. An important element of the work of the Committee and the United Nations in the next two years will be International Space Year, to be held in 1992. The

General Assembly has endorsed the Committee's recommendation that international co-operation should be promoted through the International Space Year, which should be carried out for the benefit and in the interests of all States, taking into particular account the needs of developing countries. The Sub-Committee also urged other Member States and international organizations to consider supporting additional scientific and technical activities in co-operation with the United Nations as part of the International Space Year and, in this connection, noted that it was particularly important to increase voluntary contributions for activities to be carried out during the Year through the United Nations Programme on Space Applications.

31. The primary focus of proposed activities during the Year, the Sub-Committee further noted, was on the use of space technology for studying and monitoring the environment. The United Nations Conference on Environment and Development, it will be recalled, is also being planned for 1992. Therefore, the Sub-Committee has recommended that Member States, in planning their activities for the Year, should consider ways in which those activities could complement the efforts under way for the Conference on Environment and Development.

32. No discussion of the protection of the Earth and its environment would be complete without taking into account new challenges such as the challenges created by the phenomenon of space debris.

33. An extraordinary variety of man-made objects has been injected into orbits around the Earth. Many are still intact units, but collisions between some others, as well as accidental and deliberate explosions of rocket components, have created a huge number of fragments. Space objects can therefore be divided into two categories: firstly, satellites which are active or under control, and secondly, space debris, meaning dead satellites and mission-related objects like spent rocket stages, fragments of disintegrated rockets and satellites, engine exhaust particles, paint flakes, etc.

34. According to a periodic NASA satellite situation report, there are well over 7,000 known and trackable space objects presently circling the Earth, and certainly several times as many too small to be detected with present technology. No more than about 350 are active satellites, while the rest do not fulfil any useful function. This means that, in round figures, only 5 per cent of the trackable objects are operational spacecraft, 20 per cent are non-operational satellites, 25 per cent are whole mission-related objects and 50 per cent are fragments resulting from the breakup of satellites and boosters, etc. The RAE Table of Earth Satellites 1957-1986 (published by Macmillan, London, 1987) lists more than 17,000 space objects over that period, including fragments.

35. This increasing population of orbiting objects is causing concern for a number of reasons: the safety of manned space flight; accidental re-entry of space hardware; contamination by nuclear material in space and on the ground; damage to or loss of active satellites through collisions; debris proliferation through secondary collisions; crowding in the geostationary ring; interference with astronomical observations on the ground and in space; and interference with experiments in space.

36. Space debris constitutes an unacceptable risk to man and material in space and on the ground. Little can be done about man-made objects and debris already in orbit. Man-made cleaning operations are beyond the capabilities of present

technology. The only natural cleaning effect, the atmospheric drag enhanced by solar activity, cannot cope with all the debris generated in the course of space operations. All that can be done is to minimize collision risks and the future proliferation of debris by preventive measures at the planning stage. This would involve improved design, and the avoidance of intentional and accidental explosions in space. Space hardware could be programmed to remove to extremely high disposal altitudes at the end of its working life, or be propelled down into the atmosphere, where it would burn up. There is however neither an international agreement, universal application nor even a recommendation of such measures. And, of course, they would involve the expenditures of considerable time, effort and money, with resistance to be expected from States with substantial space programmes, which would have to meet the cost.

37. I think it is only fair to bring this problem in all its dimensions before a committee that sooner or later will have to face the legal and the technical changes of an issue extricably linked to the further development of space research and space application.

38. In its consideration of remote sensing of the Earth by satellites, the Sub-Committee reiterated its view that remote sensing from outer space should be carried out, taking into account the need to provide appropriate and non-discriminatory assistance to meet the needs of the developing countries. Among other things, the Sub-Committee noted the importance of satellite remote sensing for monitoring and protecting the Earth's environment, and, in particular, for studying and monitoring global climate change.

39. I need not emphasize the importance of this question. In fact, at its last session, the General Assembly recommended that more attention be paid to all aspects related to the protection and preservation of the outer space environment, especially those potentially affecting the Earth's environment.

40. The Sub-Committee continued its consideration of the item, "Use of nuclear power sources in outer space", and, in accordance with General Assembly resolution 44/46, reconvened the Working Group on the Use of Nuclear Power Sources in Outer Space. The report of the Working Group, which was ably chaired by Professor John Carver, is attached as annex III to the Sub-Committee's report (A/AC.105/456). I am extremely pleased to inform you that the hard work and intense efforts of the Working Group have paid off and that, with its current report, the Working Group has successfully completed the elaboration of scientific and technical criteria for the safe use of nuclear power sources in outer space. The Working Group, after agreeing on the basic recommendation that the use of nuclear power sources in outer space should be restricted to those space missions which could not be operated by non-nuclear energy sources in a reasonable way, made a comprehensive set of recommendations under the headings "Design goals for radiation protection", "Nuclear reactors", and "Isotope generators". The Working Group also had an exchange of views on a number of other questions relating to the use of nuclear power sources in outer space. Distinguished delegates, we welcome these positive developments.

41. While recommending that the item be retained on a priority basis on its agenda for the next session, the Sub-Committee also recommended that the question of the reconvening of the Working Group should be considered by the Committee at this session in the light of the work that has been carried out by the Legal Sub-Committee on the subject at its twenty-ninth session. The Sub-Committee

further recommended that this Committee consider the future work of the Scientific and Technical Sub-Committee on the use of nuclear power sources in outer space and the ways in which it affects the work of the Legal Sub-Committee, in particular, on the agenda item on nuclear power sources in outer space. I look forward to hearing your views on these matters.

42. In reviewing the developments in the national and co-operative programmes in space transportation systems, the Sub-Committee continued to stress the importance of international co-operation in this field in providing all countries with access to the benefits of space science and technology. Regarding the questions relating to the physical nature and technical attributes of the geostationary orbit, as well as those relating to space communications development, I am afraid that I must once more record that there has been little progress. The Sub-Committee intends to continue its consideration of this item in the hope that some substantive movement can be achieved in the near future.

43. This was the fourth year that the Sub-Committee discussed, as agenda items, a number of scientific matters relating to life sciences, including space medicine, progress in the geosphere-biosphere (global change) programme, planetary exploration and astronomy. The official theme for the 1990 session was: "The use of space technology in terrestrial search and rescue and in disaster relief activities". The Sub-Committee has recommended that the item previously entitled "Progress in the geosphere-biosphere (global change) programme" be changed to "Progress in national and international space activities related to the Earth environment, in particular, progress in the geosphere-biosphere (global change) programme".

44. Once again, we wish to express our thanks and appreciation to the Committee on Space Research (COSPAR) and the International Astronautical Federation (IAF) for the most interesting and informative symposium on the 1990 theme. The theme fixed for special attention at the 1991 session of the Sub-Committee is "Applications of airborne and satellite remote sensing for prospecting mineral and ground-water resources and for monitoring and managing biological resources, with emphasis on agriculture, taking into particular account the needs of developing countries". The Sub-Committee has recommended that COSPAR and IAF be invited once more to arrange a symposium with as wide a participation as possible on this theme, as well as to present reports and arrange a special presentation on progress in the geosphere-biosphere (global change) programme. I believe these recommendations will be considered favourably by the Committee as they have been in the past.

45. Let me extend once again the gratitude of the Committee to IAF and COSPAR for their unceasing assistance in promoting the scientific work of the Committee.

46. As the report of the Legal Sub-Committee indicates, significant progress was achieved during its twenty-ninth session. The Working Group on the Elaboration of Draft Principles Relevant to the Use of Nuclear Power Sources in Outer Space, chaired by Mr. Hans Winkler of Austria, reconvened and recorded a consensus on a text for draft principle 3 (guidelines and criteria for safe use).

47. On this principle, the Working Group agreed that the use of nuclear power sources should be restricted to those space missions which cannot be operated by non-nuclear sources in a reasonable way. For space missions that use nuclear power sources, the Working Group agreed that international guidelines for radiological protection, including those of the International Commission on Radiological

Protection, should be observed. With this consensus on draft principle 3, it should now be possible to come to an agreement on draft principle 2 (notification of the presence of nuclear power sources on board a space object) and draft principle 4 (safety assessment). Perhaps this could even be achieved during this session of the Committee on the Peaceful Uses of Outer Space. Now that we are close to consensus on a full set of principles on nuclear power sources, it would be a major achievement if final agreement could be reached in time for adoption of the principles by the General Assembly this year.

48. The Legal Sub-Committee also reconvened its Working Group on the definition and delimitation of outer space and the character and utilization of the geostationary orbit, ably chaired by Mr. Estanislao Zawels of Argentina. In this Working Group, some delegations reiterated the need for a clear legal distinction between air space, characterized by State sovereignty and territorial integrity and security, and outer space, which is open for free exploration and use by all countries. Other delegations, however, found again no need to establish any boundaries to promote the peaceful exploration of outer space. The delegations also maintained divergent views on the need for a unique legal régime for the use of the geostationary orbit.

49. In accordance with General Assembly resolution 44/46, the Legal Sub-Committee again considered its newest agenda item on the legal aspects related to the application of the principle that the exploration and utilization of outer space should be carried out for the benefit and in the interests of all States, taking into particular account the needs of developing countries. For the work on this item, the Sub-Committee had before it replies by Member States to two note verbales from the Secretary-General requesting Member States to provide views and information relating to priority subjects, to national legal frameworks and the relevant international agreements. Although the work on this item has just begun, it signifies the continuing role of the United Nations in developing international space law and ensuring that the access, benefits, understanding and utilization of outer space and its technologies are made available for all humankind. The Sub-Committee this year, in accordance with General Assembly resolution 44/46, established a Working Group on this item, which will begin work at the next session of the Sub-Committee. I am pleased to not that Mr. Raimundo González of Chile was elected Chairman of the new Working Group. During the consideration of this item in the Sub-Committee this year, several ideas were put forward which I hope might provide a basis for further discussions and progress during the current session of the Committee and allow the Working Group to begin meaningful work next year.

50. And indeed, the further development of space law, of bringing the rule of law to outer space, will be one of the major challenges before this Committee. Space-faring nations are now well advanced in their plans to build the first permanent space stations, to return to the Moon, perhaps on a permanent basis, and to go on to Mars. These new space ventures will require initiatives for co-ordinated legal provisions for the Moon and legal norms realistically tailored for the conquest of Mars. Attention might also be focused on the legal and technical challenges created by asteroids.

51. As one of the leading space-lawyers of this country, and indeed of the international space community, Ms. Eilene Galloway has recently suggested in a much-noted article in the Space News journal, "action might be needed on the puzzling situation created by the fact that there is broad international agreement on some basic principles for exploring and using the Moon and Mars, but a different

Moon Agreement has been added with the barest minimum of support". There is a case therefore for scientists and engineers to get together early with lawyers who are working on national and international legal problems created by space activities. Otherwise, a situation is apt to arise where the scientists and engineers propose plans that violate adopted space laws while the lawyers may suggest procedures that are not technologically feasible. The Moon and Mars missions are multidisciplinary, and each discipline must contribute that degree of knowledge essential for clean interfaces of co-operation, order and safety.

52. In this regard, the Committee might also focus attention on the 1994 Review Conference for the Moon Agreement b/ with a view to permitting maximum international co-operation for the peaceful exploration of this particular celestial body. In the course of this review attention should also focus on the question of whether legal provisions formulated for the Moon can be assumed to apply automatically to Mars because it is one of the "other celestial bodies", or whether it could be appropriate to draft a treaty specially for Mars.

53. Regarding the other items of the agenda before the Committee, the implementation of the recommendations of the Second United Nations Conference on the Exploration and Peaceful Uses of Outer Space was already mentioned in connection with the Programme on Space Applications. Let me also remind you that we are to continue consideration of the agend item introduced last year, entitled "Spin-off benefits of space technology: review of current status". I hope that many delegations will benefit from the information presented during our consideration of this item.

54. Distinguished delegates, while the subsidiary bodies of the Committee made some substantive progress on some issues, in particular, on the use of nuclear power sources in outer space, concrete results are still rather limited in other areas of the work of our Committee and its Sub-Committees. Let us not forget that the Committee on the Peaceful Uses of Outer Space has an enormous responsibility in promoting international co-operation in the peaceful exploration of outer space, as it is the only body in the United Nations organization that deals exclusively with outer space matters.

55. Before concluding, I would like to note that the past year has seen some remarkable developments in international politics, and that these developments will certainly have long-term repercussions on the work of our Committee.

56. Meeting a day after a truly historic summit meeting between the Presidents of the United States and the Soviet Union had successfully concluded, it is perhaps appropriate to speculate for a moment on the new possibilities of space co-operation that this new and unprecedented relationship between the two major space Powers is opening. The time has now come to think no longer in terms of rivalry and competition, but in the spirit that has always been suggested by the intensity of the tasks set by the peaceful conquest of outer space. We might hope, therefore, that in designing, but also operating, new space ventures, co-ordination and co-operation will henceforth be the order of the day. Thus, recent proposals, such as the creation by the space super-Powers and the European Space Agency of a multilateral Space Station Council to meet routinely for discussion on the assembly and operation of crewed platforms in space could gain new relevance. The need for a forum is highlighted by recent difficulties encountered by Europe, the United States and the Soviet Union in their respective programmes.

57. As a result of recent political and economic changes, many countries are now in the process of reconsidering their policies relating to international relations and international co-operation. While these changes pose difficult challenges, they also offer great opportunities for expanding international co-operation in the political, economic and social spheres. With the decline in political antagonism, people and Governments are increasingly focusing on economic development, social and cultural exchange and environmental quality. The applications of space technology have important contributions to make in all of these areas, but the benefits can be realized only through expanded international co-operation. Applications of remote sensing, satellite communications and broadcasting, and environmental monitoring are complex and expensive technologies that require international sharing of know-how, costs and benefits so that all will benefit fully.

58. While much attention during the past year has focused on changes in East-West relations, we must not forget that the most urgent need for economic and social development remains in the developing countries of Latin America, Africa and Asia. The increase in East-West co-operation between developed countries must not be at the expense of North-South co-operation between developed and developing countries, but should provide the basis for an increased global co-operation and an increased concern for the welfare of all humankind.

59. Distinguished delegates, in the context of all of these challenges and opportunities, I am sure that the Committee will re-dedicate itself to promoting international co-operation in the peaceful uses of outer space for the benefit of all humanity.

Notes

a/ See Report of the Second United Nations Conference on the Exploration and Peaceful Uses of Outer Space, Vienna, 9-21 August 1982 (A/CONF.101/10 and Corr. 1 and 2).

b/ Agreement Governing the Activities of States on the Moon and Other Celestial Bodies (see General Assembly resolution 34/68, annex, of 5 December 1979).

ANNEX II

Report of the Legal Sub-Committee on the work of its twenty-ninth session

The elaboration of draft principles relevant to the use of nuclear power sources in outer space: working paper submitted by Canada and the Federal Republic of Germany under agenda item 6*

The following is the seventh revision of the draft principles contained in working paper A/AC.105/C.2/L.154 of 25 March 1986 and reflects discussions held at the thirty-third session of the Committee on the Peaceful Uses of Outer Space.

Principles 1, 3, 5, 6, 7 and 10 have been agreed to by the Sub-Committee. It was noted by the Committee at its thirty-third session that a basis for consensus in the near future had been provided on a text for draft principle 8 and on the deletion of draft principle 11.

New Principle 1A: Definition of launching State

For the purposes of these principles the terms "launching State" or "State launching" are defined as the State on whose registry a space object is carried in accordance with the Convention on Registration of Objects Launched into Outer Space or, if the object is not registered in accordance with that Convention, the State which exercises or plans to exercise jurisdiction and control over such space objects as envisaged in article VIII of the Treaty on Principles Governing the Activities of States in the Exploration and Use of Outer Space, including the Moon and Other Celestial Bodies.

Principle 2: Notification of the presence on board a space object of a nuclear power source**

Each State of registry of a space object with a nuclear power source on board shall furnish to the Secretary-General of the United Nations, to the greatest extent feasible and as soon as practicable, specific information as to the presence on board that space object of a nuclear power source and its generic classification.

Principle 4: Safety assessment**

1. A State having jurisdiction and control over nuclear power sources on board space objects shall conclude a thorough safety assessment prior to each launch.

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* Previously circulated as document A/AC.105/C.2/L.154/Rev.7.

** Principles 2 and 4 should be considered together with a view to their possible amalgamation.

Such assessment shall cover all relevant phases of the mission, including all systems involved, and shall respect the guidelines and criteria for safe use contained in principle 3.

2. In order to contribute to public understanding and confidence concerning the use of nuclear power sources in outer space, each State shall make the assessment publicly available prior to each launch.

3. In addition, each such State should provide to the Secretary-General of the United Nations information on how other States may obtain such publicly available assessment.

Principle 8: Responsibility

1. In accordance with article VI of the Treaty on Principles Governing the Activities of States in the Exploration and Use of Outer Space, including the Moon and Other Celestial Bodies, States shall bear international responsibility for national activities in outer space involving the use of nuclear power sources, whether such activities are carried on by governmental agencies or by non-governmental entities, and for assuring that such national activities are carried out in conformity with that Treaty and the recommendations contained in these principles.

2. When activities in outer space involving the use of nuclear power sources are carried on by an international organization, responsibility for compliance with the aforesaid Treaty and the recommendations contained in these principles shall be borne both by the international organization and by the States participating in it.

Principle 9: Compensation

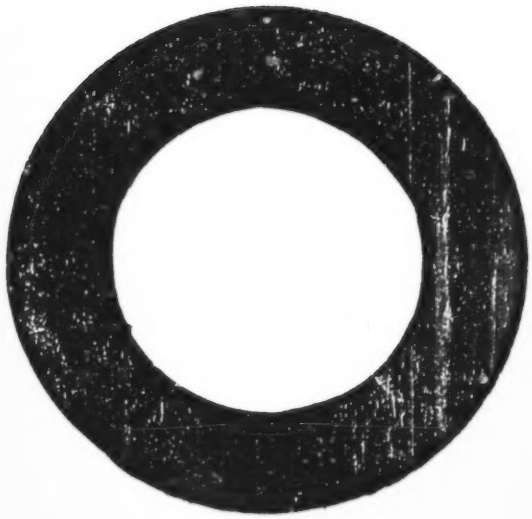
1. In accordance with article VII of the Treaty on Principles Governing the Activities of States in the Exploration and Use of Outer Space, including the Moon and Other Celestial Bodies, and the provisions of the Convention on International Liability for Damage Caused by Space Objects, each State launching a space object with nuclear power sources on board shall be internationally liable to another State party to the Treaty for damage caused by such space objects or their component parts.

2. The compensation that such States shall be liable to pay under the aforesaid Convention for damage shall be determined in accordance with international law and the principles of justice and equity in order to provide such reparation in respect of the damages as will restore the person, natural or juridical, State or international organization on whose behalf a claim is presented to the condition which would have existed if the damage had not occurred.

3. Compensation under the provisions of this Convention shall also include reimbursement of the duly substantiated expenses for search, recover and clean-up operations, including expenses for assistance received from third parties, bearing in mind the provisions of article XXIII of that Convention regarding other international agreements.

Principle 12: Revision

These principles shall be reviewed by the Committee on the Peaceful Uses of Outer Space no later than 10 years after their adoption.



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